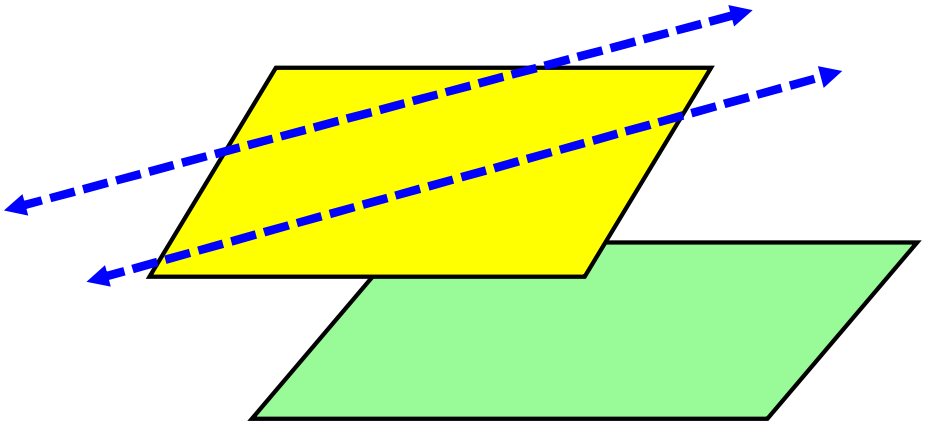
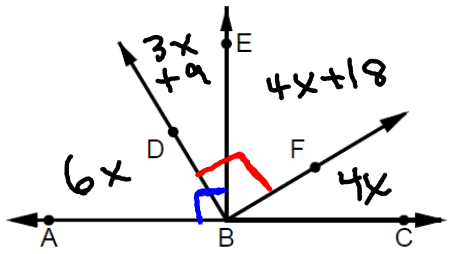
Parallel lines and planes



$9x+9=90$ $2x+27=90$



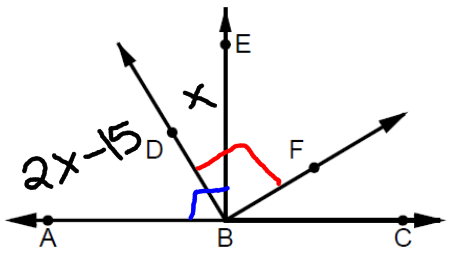
7. m∠ABD = 6x, m∠DBE = 3x + 9, m∠EBF = 4x + 18, m∠FBC = 4x.

$17x+27=180$
$-27 \quad -27$

$\frac{17x}{17}=\frac{153}{17}$ $x=9$

8. m∠ABD = 2x - 15, m∠DBE = x.

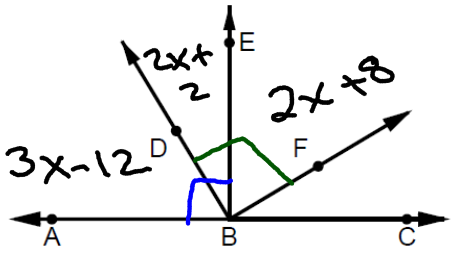
$3x-15=90$
$+15 \quad +15$
$\frac{3x}{3}=\frac{105}{3}$
$x=35$



9. m∠ABD = 3x - 12, m∠DBE = 2x +2, m∠EBF = 2x + 8.

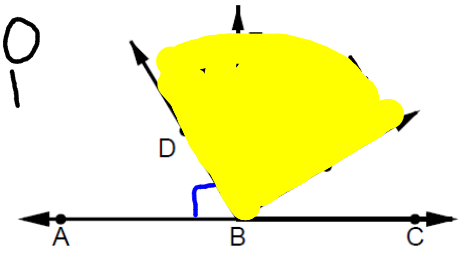
$4x+10=90$

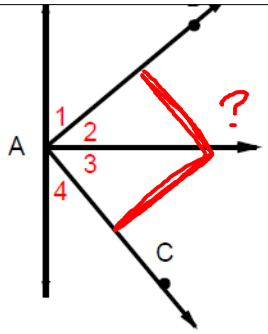
$5x-10=90$
$+10 \quad +10$
$\frac{5x}{5}=\frac{100}{5}$
$x=20$



10. m∠DBE = 3x, m∠EBF = 4x - 1.

$7x-1=90$
$+1 \quad +1$
$\frac{7x}{7}=\frac{91}{7}$
$x=13$





11. ∠1 ≅ ∠4, and ∠2 ≅ ∠3.

yes

12. m∠1 = 48 and m∠4 = 42.

yes

13. ∠1 ≅ 3 and ∠2 ≅ 4.

yes

14. ∠1 and ∠3 are complementary.

no

15. m∠1 = m∠2 and m∠3 = m∠4.

yes

16. ∠2 ≅ ∠3.

no

17. m∠1 = m∠4.

no

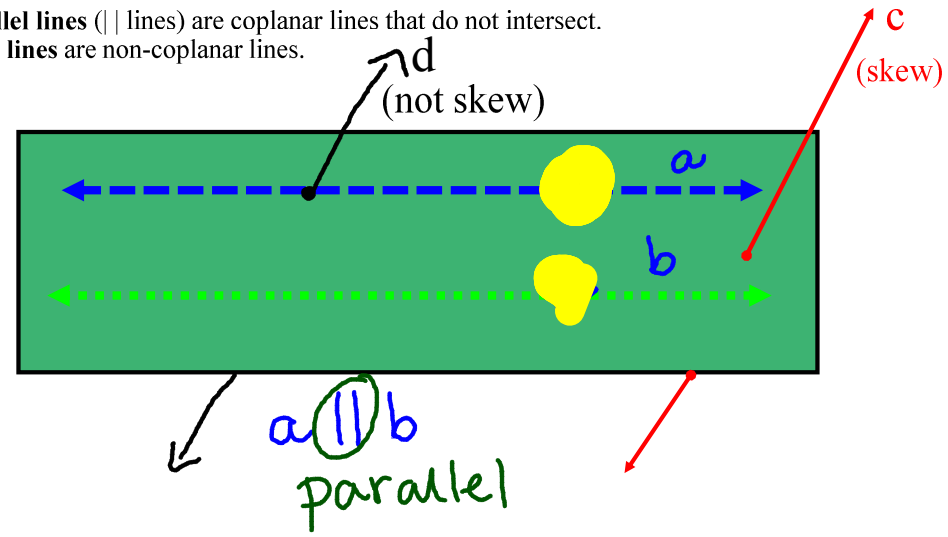
18. m∠1 + m∠4 = 90.

yes

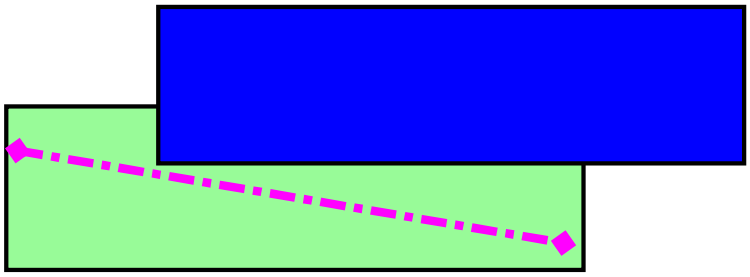
Two lines that do not intersect are either *parallel* or *skew*.

Remember,

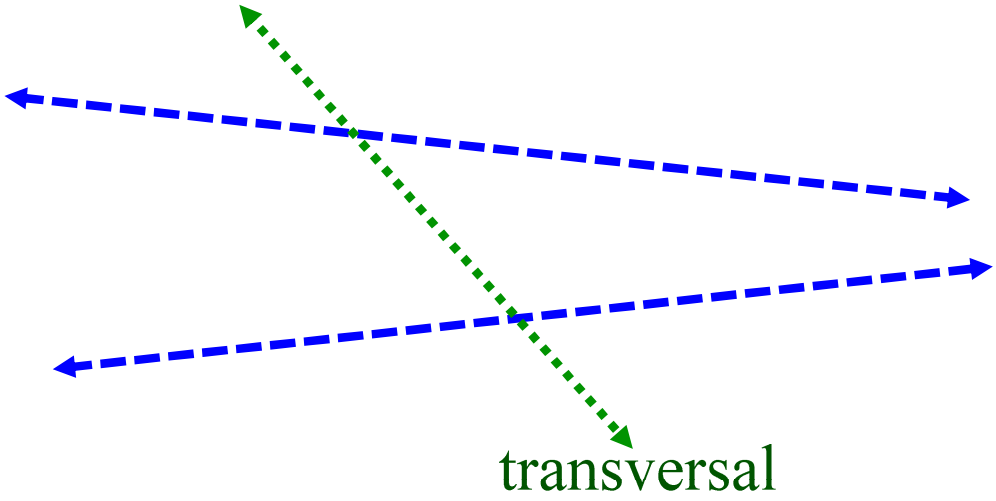
Parallel lines (| | lines) are coplanar lines that do not intersect.
Skew lines are non-coplanar lines.



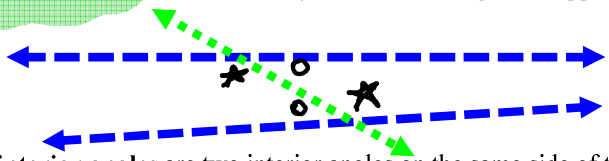
A line and a plane are parallel if they do not intersect.



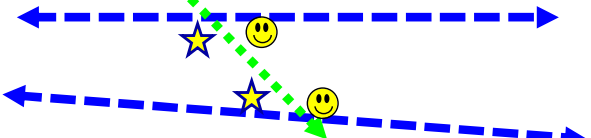
Remember,
A **transversal** is any line that intersects two or more distinct lines in different points. Notice that the lines need not be parallel for the intersecting line to be called a transversal.



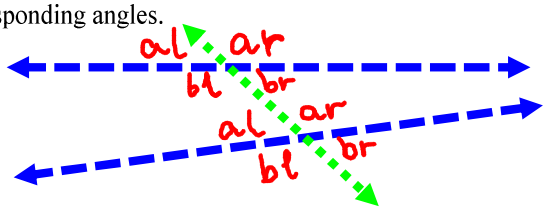
Alternate interior angles are two nonadjacent interior angles on oppostie sides of the transversal.



Same-side interior angles are two interior angles on the same side of the transeversal.



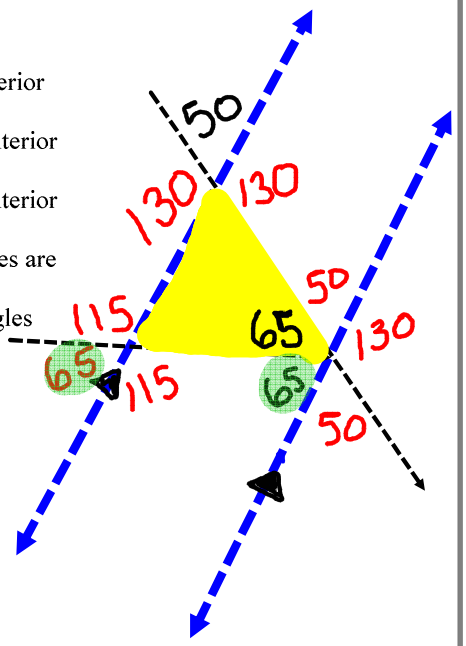
Corresponding angles are two angles in corresponding positions relative to the two lines. There are four pairs of corresponding angles.



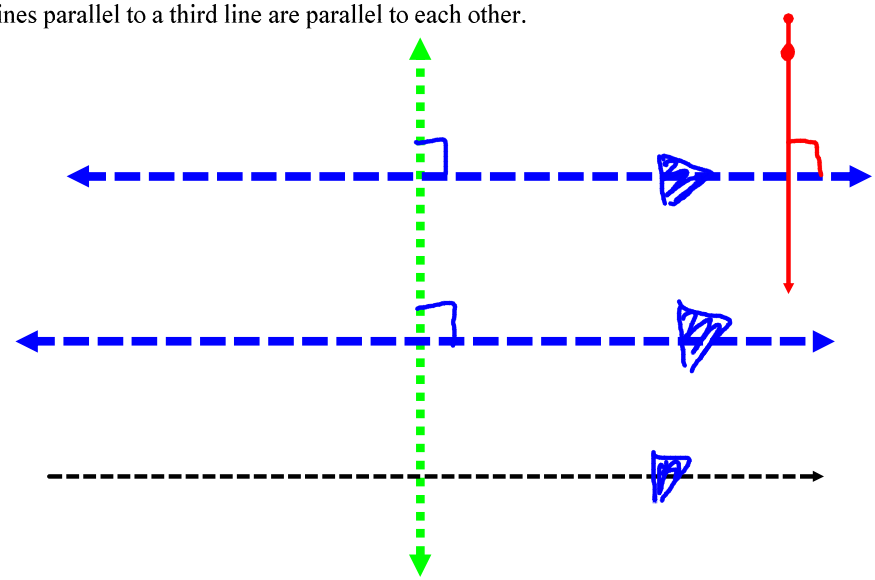
Recall

If two parallel lines are cut by a transversal, then alternate interior angles are congruent.
If two parallel lines are cut by a transversal, then same-side interior angles are supplementary.
If two parallel lines are cut by a transversal, then same-side interior angles are supplementary.
If two lines are cut by a transversal and alternate interior angles are congruent, then the lines are parallel.
If two lines are cut by a transversal and same-side interior angles are supplementary, then the lines are parallel.

If lines are parallel.



In a plane two lines perpendicular to the same line are parallel.
Through a point outside a line, there is exactly one line parallel to the given line.
Through a point outside a line, there is exactly one line perpendicular to the given line.
Two lines parallel to a third line are parallel to each other.



Paideia Prep

Rewrite Euclid's first 12 elements in your own words.